

SPECIES OF THE GENUS *TRACHYTES* MICHAEL, 1894  
(ACARI: UROPODINA: TRACHYTIDAE) OF ROMANIA

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The Romanian species of the genus *Trachytes* Michael, 1894 are reviewed and a key to the known species is given. A new species, *Trachytes mahunkai* sp. n., is described and illustrated. The new species is closely related to *T. micropunctata* Huțu, 1973, but it possesses a sculptural pattern consists of oval, irregular pits.

Key words: Acari, Uropodina, *Trachytes*, new records, new species, Romania.

## INTRODUCTION

Uropodina mites are one of most widely distributed and species rich groups of soil dwelling mites. Currently more than 2000 species are described from all regions of the Earth, from the Polar Regions to the tropics (LINDQUIST *et al.* 2009). Genera of uropodine mites rarely have an exclusively Holarctic distribution (WIŚNIEWSKI & HIRSCHMANN 1993), with only the genus *Trachytes* Michael, 1894 showing this distribution type. Its species are found in both, North America and Eurasia (KONTSCHÁN & STARÝ 2011, 2012), and having its southern limit in the mountainous region of Vietnam where a single species is recorded (KONTSCHÁN & STARÝ 2011).

*Trachytes* is well represented in Romania. The first contribution on the genus was by HUȚU (1973), who described three new species. Later, beside her faunistical studies (e.g. HUȚU 1993), she described several further *Trachytes* species from Romania (HUȚU 1983, 2000) as well. More recently, KONTSCHÁN (2006), CONSTANTINESCU (2011) and KONTSCHÁN and UJVÁRI (2008) studied the Uropodina fauna of different parts of Romania and presented numerous new occurrences of *Trachytes* species.

## MATERIAL AND METHODS

The specimens investigated were found in the Collection of Soil Zoology at the Hungarian Natural History Museum (Budapest, Hungary). The samples were collected by the following researchers: Csaba Csuzdi (CsCs), László Dányi (DL), Edit Horváth (HE), Jenő Kotschán (KJ), Tibor Kovács (KT), György Makranczy (MGy), Ferenc Mészáros (MF),

Dávid Murányi (MD), András Orosz (OA), Victor V. Pop (VVP), Gellért Puskás (PG), Katalin Sin (SK), György Sziráki (SzGy), Tamás Szűts (SzT) and Zsolt Ujvári (UZs). Identified specimens are stored in alcohol and deposited in the Soil Zoology Collection of the Hungarian Natural History Museum, the types specimens of the new species are also stored in alcohol and deposited in the Soil Zoology Collection of the Hungarian Natural History Museum (HNHM) and in the Natural History Museum, Geneva (NHMG).

The specimens were cleared in lactic acid and observed in deep and half covered slides, with a scientific microscope. Illustrations were made with the aid of a drawing tube. Measurements are given in micrometers ( $\mu\text{m}$ ), width of idiosoma was taken at the level of coxae IV.

## RESULTS

### List of the Romanian *Trachytes* species

#### *Trachytes aegrota* (C. L. Koch, 1841)

*New records.* Canton Glavoi (Ponor), from soil moss, N46°34.399', E22°42.780', 1092 m, 25.X.2009, CsCs-KJ-VVP-UZs. Caraş-Severin county, Semenec Mts, open brook E of Mt. Piatra Goznei, sphagnum bog, 11.VI.2011, MD-KT-PG. Caraş-Severin, Munţii Locvei, 3.5 km NNE Sfânta Helena, Peştera cu Apă from Valea Ceucă, pond, 320 m, wet, humusy soil with stones at rock wall, soil-washing, 44°42' 14"N, 21°43' 44"E, 08.X.2009, leg. MGy. Mehadia, Cerna Sat, beech forest, near a small stream, N45°05.396', E22°38.134', 486 m, beech leaf litter, 29.X.2007, CsCs-KJ-VVP, Obârşia-Cloşani, beech forest, N45°01.333', E22°42.378', 271 m, leaf litter, 29.X.2007, CsCs-KJ-VVP. Mehadia, Cerna Sat, beech forest, near the river Cerna, N45°04.646', E22°37.368', 436 m, 29.X.2007, CsCs-KJ-VVP. Oltenia, Poiana Mărnului, beech forest, N45°23.362', E22°34.475', 890 m, lichens from the soil level, 02.XI.2007, CsCs-KJ-VVP. Muntele Mic, after Borlova, beech forest, N45°20.772', E22°28.590', 1434 m, soil moss, 01.XI.2007, CsCs-KJ-VVP. Transylvania, after village Cobeşti, beech forest, decayed tree, N46°6.544', E22°21.590', 337 m, 24.X.2009, CsCs-KJ-VVP-UZs. Transylvania, between Cătătele and Beliş, mountain grassland, from moss, N46°41.603', E23°01.356', 1108 m, 26.X.2009, CsCs-KJ-VVP-UZs. Transylvania, Bihor Mts, under Cetăţile Rădesei (Aragyásza Cave), N46.63258° E22.71160°, 1117 m, spruce forest on sandstone, from *Sphagnum*, 23.IX.2009, DL. Transylvania, Cheile Runcului, from soil, 10.VII.1998, HE. Transylvania, Harghita County, Pasul Vlăhiţa from *Sphagnum* bog, 01.VIII.1999, OA. Transylvania, Harghita County, Pasul Vlăhiţa, from moss, 01.VIII.1999, OA. Transylvania, Lacul Roşu, from moss, 20.VII.1983, SK. Transylvania, Meziad, near a cave, from beech litter, N46°45.765', E22°28.504', 390 m, 29.X.2009, CsCs-KJ-VVP-UZs. Transylvania, Mt. Ceahlău, N46.96145°, E25.94921°, 1744 m, under *Pinus mugo*, soil, 25.IX.2009, DL. Valley of Someşul Cald, near lake Tarniţa, hornbeam-beech mixed forest, from leaf litter, 610 m, 22.VII.2009, CsCs. Transylvania, Mts Apuseni, Abrud to Zlatna, 872 m, 46°12'30"N, 23°07'18"E, 28.III.2010, CsCs. Sovata, stream shore, 1000 m, leaf litter, 12.VIII.2010, SzGy. Transylvania, near to Lacul Sfânta Ana, 600 m, from moss, 01.VIII.1999, OA. Transylvania, near to Lacul Sfânta Ana, 600 m, from *Sphagnum* bog, 01.VIII.1999, OA. Transylvania, near to Lacul Sfânta Ana, from moss, 01.VIII.1999, OA. Transylvania, near Zalău, mixed beech forest, leaf litter, N47°09.275', E23°05.050', 535 m, 24.X.2009, CsCs-KJ-VVP-UZs. Transylvania, Padiş plato, spruce forest, from moss, N46°35.776', E22°43.317', 1290 m, 25.X.2009, CsCs-KJ-VVP-UZs. Transylvania, Rimetea, near Piatra Secuiului, 1128 m, soil from a rocky grassland,

07.VII.1998, HE. Transylvania, Rimetea, Piatra Secuiului, moss from rock, 20.IX.2000, SzT. Transylvania, Sâncrăieni, soil with the root of Poaceae, 01.VIII.2009, JG-ZL, Sâncrăieni, from moss, 01.VIII.2009, JG-ZL. Transylvania, Sovata, stream shore, 1000 m, moss from tree, 12.VIII.2010, SzGy. Transylvania, Turda, Cheile Turzii, from moss from rock, 08.07.1998, HE. Transylvania, Turda, Cheile Turzii, from moss, 20.VIII.1999, MF. Transylvania, Vlădeasa, Săcuien, after cottage, pine forest, N46°46.368', E22°48.683', 1327 m, moss, 04.XI.2007, CsCs-KJ-VVP. Bukovina, above Broșteni, spruce forest, soil moss, N47°18.952'; E25°41.410', 1131 m, 03.XI.2011, CsCs-KJ-VVP-UZs.

*Previous records from Romania.* Maramureș (KONTSCHÁN 2006, 2008), High Plain Pitești (CONSTANTINESCU 2011), Moldova (HUȚU 1974), Danube Delta (HUȚU 1993, HUȚU & CĂLUGĂR 1994).

*Distribution.* Europe.

### *Trachytes arcuatus* Hirschmann et Zirngiebl-Nicol, 1969

*Previous records from Romania.* This species is known without exact localities, only from WISNIEWSKI'S (1993) list.

*Distribution.* Romania.

### *Trachytes adrianaea* Huțu, 2000

*New record.* Bukovina, Iedu, spruce forest, from moss, soil and alder leaf litter, N47°39.688', E25°06.354', 1105 m, 01.XI.2011, CsCs-KJ-VVP-UZs.

*Previous records from Romania.* Bihor Mts, Padiș; Codru-Moma Mts, Pădurea Craiului Mts (HUȚU 2000).

*Distribution.* Romania.

*Remark.* Endemic species.

### *Trachytes augusta* Huțu, 2000

*Previous records from Romania.* Retezat National Park (HUȚU 2000).

*Distribution.* Romania.

*Remark.* Endemic species.

### *Trachytes baloghi* Hirschmann et Zirngiebl-Nicol, 1969

*New record.* Oltenia, near Lelești, oak forest and meadow, N45°04.102', E23°12.525', 265 m, from leaf litter, 27.X.2007, CsCs-KJ-VVP.

*Previous records from Romania.* This species is known without exact localities, only from WISNIEWSKI'S (1993) list.

*Distribution.* Palearctic.

*Trachytes carpathicus* Kontschán, 2007

*New records.* Mehadia, Cerna Sat, beech forest, near the river Cerna, N45°04.646', 22°37.368', 436 m, from leaf litter, 29.X.2007, CsCs-KJ-VVP. Transylvania, near to Lacul Sfânta Ana, 600 m, from moss, 01.VIII.1999, OA. Transylvania, near to Lacul Sfânta Ana, from *Sphagnum* bog, 01.VIII.1999, OA. Transylvania, Turda, Cheile Turzii, moss from rock in a stream, 21.09.2001, SzT. Transylvania, Turda, Cheile Turzii, from moss, 20.09.2000, HE. Transylvania, Turda, Cheile Turzii, after the mountain house, moss from the grassland, 20.09.2000, SzT. Transylvania, Sâncrăieni, soil with the root of Poaceae, 03.VIII.2009, JG-ZL, Oltenia, Muntele Mic, after Borlova, beech forest, N45°20.772', E22°28.590', 1434 m, from soil, 01.XI.2007, CsCs-KJ-VVP. Valley of Someșul Cald, near Lacul Tarnița, lake shore, in a mixed hornbeam-beech forest, from leaf litter, 610 m, 22.VII.2009, CsCs.

*Previous records from Romania.* Maramureș (KONTSCHÁN 2006, 2008).

*Distribution.* Romania and Croatia.

*Remark.* Subendemic species, which also occurs in the southern part of Carpathian Basin (KONTSCHÁN 2013).

*Trachytes decui* Huțu, 1983

*Previous records from Romania.* Oltenia (HUȚU 1983).

*Distribution.* Romania.

*Remark.* Endemic species.

*Trachytes irenae* Pecina, 1970

*New records.* Transylvania, Bihor Mts, under Cetățile Rădesei (Aragyásza Cave), N46.63258° E22.71160°, 1117 m, spruce forest on sandstone, from *Sphagnum*, 23.IX.2009, DL. Transylvania, Cârțișoara, near the lake, 1200 m, 15.VII.1993, ZL. Oltenia, Poiana Mărnului, pine forest, N45°21.083', E22°38.284', 1371 m, leaf litter, 02.XI.2007, CsCs-KJ-VVP.

*Previous records from Romania.* Maramureș (KONTSCHÁN 2006, 2008), Moldova (HUȚU 1974).

*Distribution.* Slovakia, Austria, Poland, Ukraine, Romania.

*Trachytes hiramatsui* Huțu, 1983

*Previous records from Romania.* Oltenia (HUȚU 1983).

*Distribution.* Romania.

*Remark.* Endemic species.

*Trachytes hirschmanni* Huțu, 1973

*Previous records from Romania.* Rarău, Suceava County (HUȚU 1977).

*Distribution.* Romania, Ukraine and Poland.

*Remark.* Endemic species.

*Trachytes lamda* Berlese, 1903

*Previous records from Romania.* Retezat National Park (HUȚU 2000).

*Distribution.* Europe.

**Trachytes mahunkai** sp. n.

(Figs 1–16)

Material examined. Holotype. Female (HNHM), Petroșani, 1.5 km before Lainici, beech forest, 45°16.255', 23°22.542', 413 m. a.s.l., leaf litter, 27.X.2007, CsCs-KJ-VVP. Paratypes 5 females (3 in HNHM, 2 in NHMG), 5 males (3 in HNHM, 2 in NHMG) locality and date same as in the holotype. 2 female paratypes, Oltenia, Poiana Mărnului, pine forest, N45°21.083', E22°38.284', 1371 m, leaf litter of pine, 02.XI.2007, CsCs-KJ-VVP.

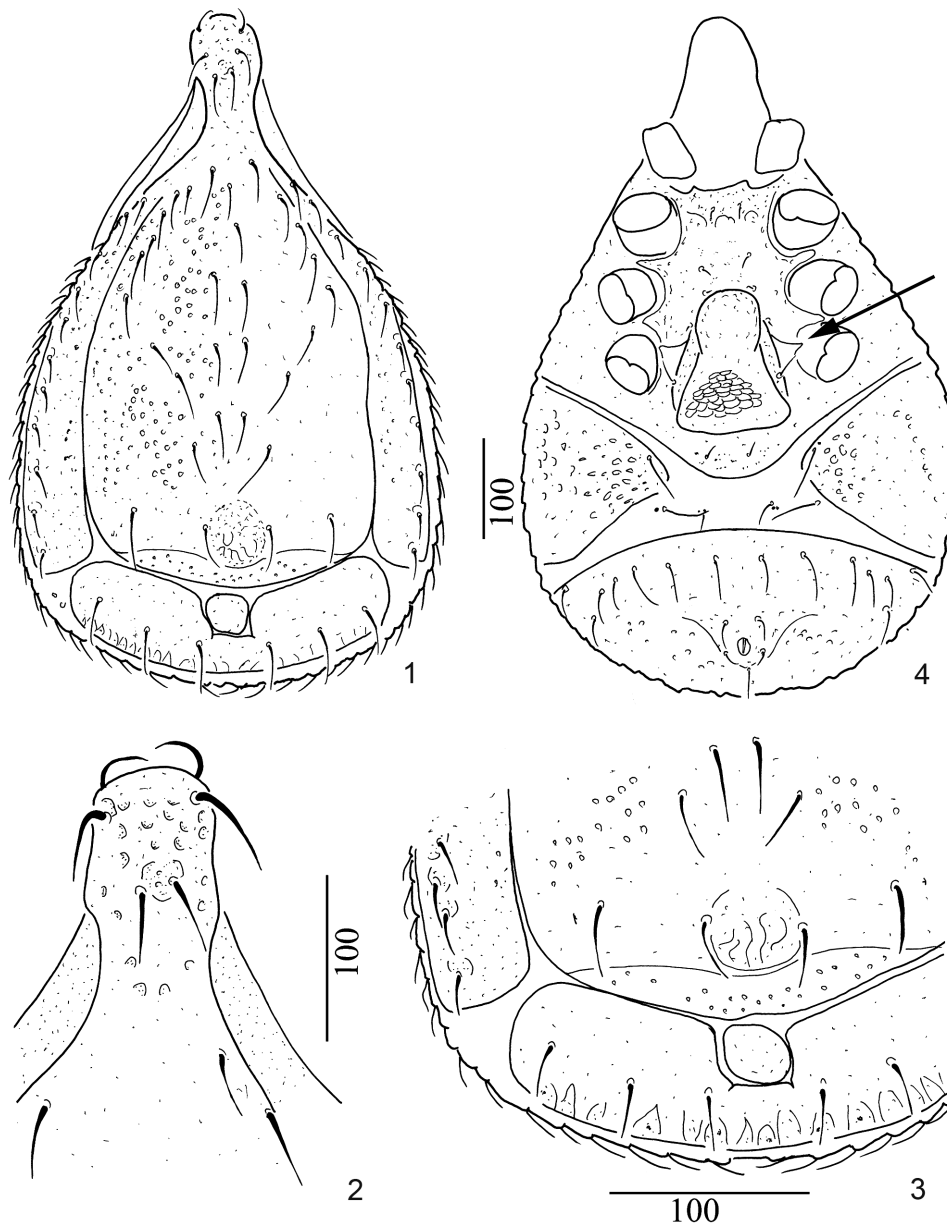
Description. Female. Length of idiosoma 630–640 μm, width 370–440 μm (n = 6). Shape of idiosoma pear-like.

Dorsal idiosoma (Fig. 1). Wide and ribbed lateral sections on vertex absent (Fig. 2). Marginal and dorsal shields fused anteriorly, dorsal shield *ca* 285–290 μm wide at caudal margin. Pygidial shield small and rounded (*ca* 35–37 μm long and *ca* 40–41 μm wide, placed between posterior margin of dorsal shield and anterior margin of postdorsal shield. Postdorsal shield *ca* 73–76 μm long and *ca* 310–320 μm wide. All setae on dorsal and postdorsal shields smooth, needle-like and *ca* 39–50 μm long, setae on central area of dorsal shield placed on small, strongly sclerotized platelets. Setae on marginal shield needle-like and *ca* 26–30 μm long. Surface of dorsal shield covered by deep, oval pits (Figs 2–3), other shields on dorsal body with smooth surface (Fig. 3).

Ventral idiosoma (Fig. 4). Sternal setae (St1–St3) shorter (*ca* 15–23 μm), St4–St5 longer (*ca* 40–42 μm) smooth and needle-like. St1 situated near anterior margin of sternal shield, St2 at level of posterior margin of coxae II, St3 near anterior margin of genital shield, and their length *ca* 7–9 μm. St4 situated at level of central area of coxae III, St5 on adgenital platelets, St6 placed near basal margin of genital shield. Surface of sternal shield covered by small oval pits. Sternal, ventral and inguinal shields not fused. Surface of ventral shield covered by oval pits. Inguinal shield with one pair long (*ca* 45 μm) and needle-like setae and covered by irregular pits. Seven pairs of setae situated on ventral shield (Fig. 8) similar in shape and length to setae on inguinal shield. Two pairs of setae on the membranous cuticle, between ventral and inguinal shields present, central pair of setae shorter (*ca* 20 μm) than lateral pair (*ca* 43 μm) (Fig. 6). One paratype, one of central pair of setae on membranous cuticle placed on ventrianal shield (Fig. 7). Two pairs of adanal setae and one postanal seta needle-like, short (*ca* 18–23 μm) and situated near anal opening.

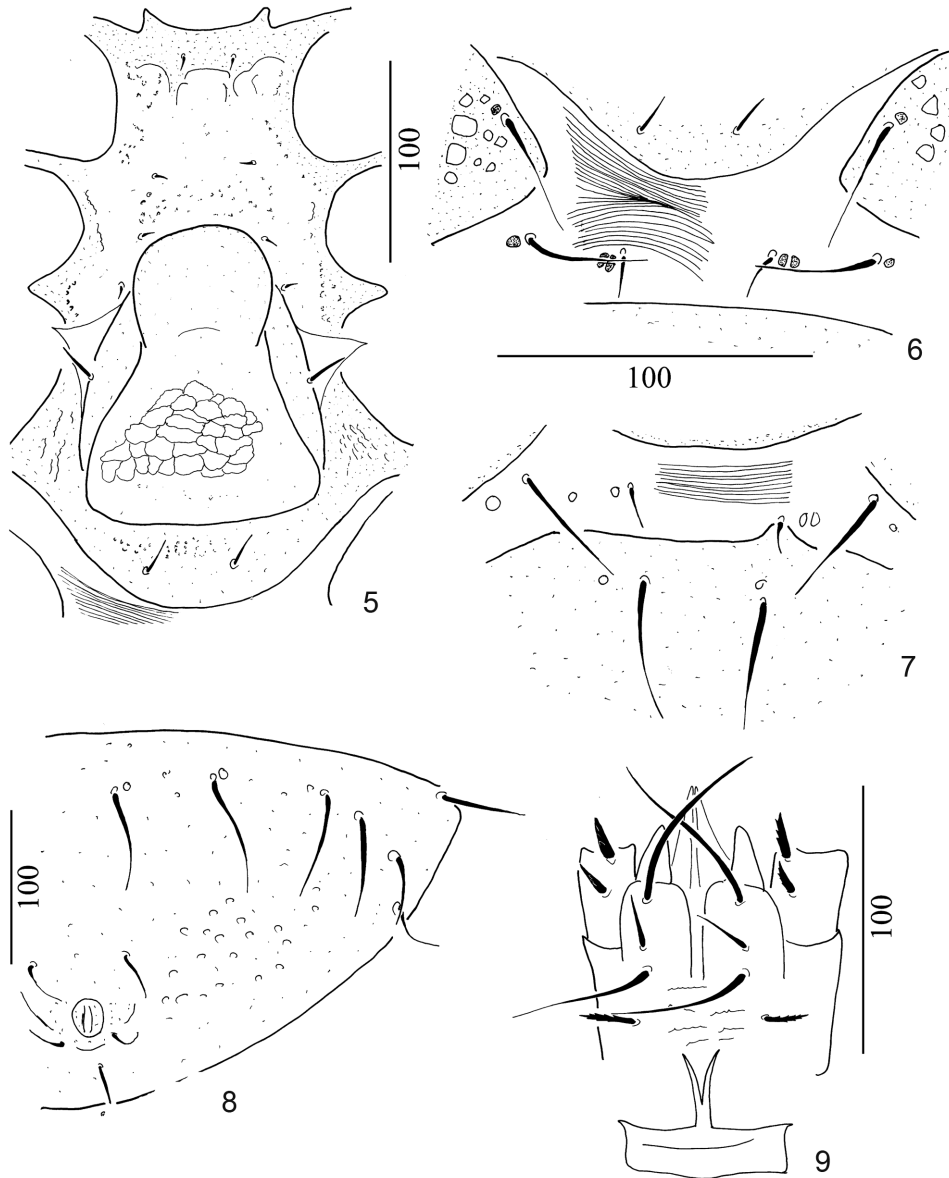
Genital shield *ca* 140–142 μm long and *ca* 110–112 μm wide, its shape ax-like, with rounded anterior margin, its surface covered by reticulate sculptural pattern on basal area. Adgenital platelets present with a sail-shaped processes on their outer margins. Genital shield situated between coxae III and IV (Fig. 5). Peritremes long and straight, stigmata situated between coxae II and III. Tritosternum (Fig. 9) with wide base, tritosternal laciniae divided into two long branches.

Gnathosoma (Fig. 9). Corniculi horn-like, internal malae longer than corniculi and smooth. Hypostomal setae h1 long (*ca* 70 μm) and smooth, h2 short (*ca* 23 μm) and smooth, h3 similar to h1 in shape, *ca* 55 μm long, h4 marginally serrate and *ca* 17 μm long. Cheli-



**Figs 1–4.** *Trachytes mahunkai* sp. n., female, holotype: 1 = dorsal view of body, 2 = vertex, 3 = caudal area of dorsal body, 4 = ventral view of body (arrow shows the sail-shaped process on the outer margins of adgenital shield).

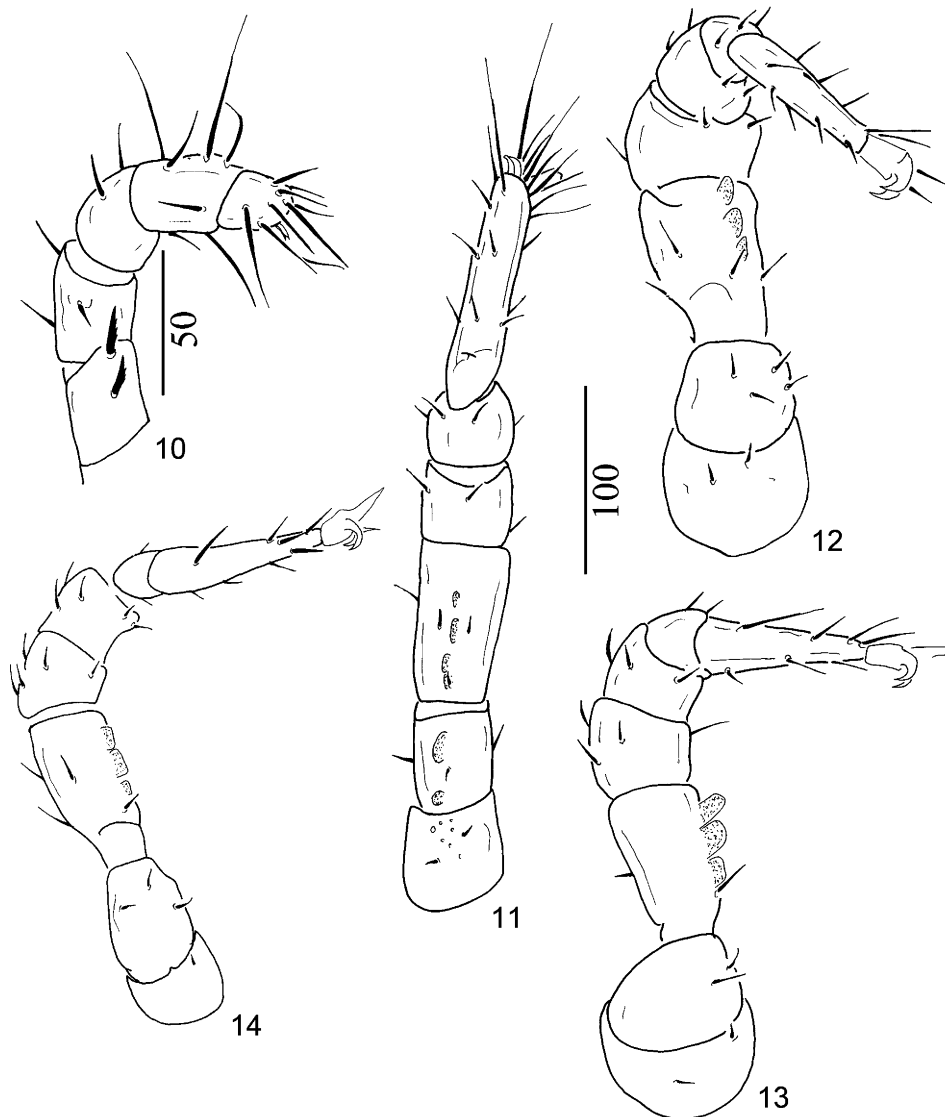
cerae with long and sharpened apical process on fixed digit, movable digit shorter than fixed digit. Epistome marginally serrate. Palps with two serrate ventral setae, other setae on palp smooth (Fig. 10).



**Figs 5–9.** *Trachytes mahunkai* sp. n., female: 5 = intercoxal area, 6 = setation on membranous cuticle in holotype, 7 = setation on membranous cuticle in a paratype, 8 = setae and ornamentation on ventrianal shield, 9 = ventral view of gnathosoma and tritosternum.

Legs. Leg I with small ambulacral claws (Fig. 11) and with smooth and needle-like setae; other legs bearing smooth and serrate, pilose setae (Figs 12–14).

Male. Length of idiosoma 610  $\mu\text{m}$ , width 370  $\mu\text{m}$  (n = 5). Shape and dorsal aspect of idiosoma as in female, except the caudal area of dorsal idiosoma: pygidial shield absent, postdorsal shield narrow (ca 44–46  $\mu\text{m}$  long and ca 300–305  $\mu\text{m}$  wide) and covered by oval pits (Fig. 15), setae on postdorsal shield as in female.



**Figs 10–14.** *Trachytes mahunkai* sp. n., female, holotype: 10 = palp, 11 = leg I, 12 = leg II, 13 = leg III, 14 = leg IV (ventral view).

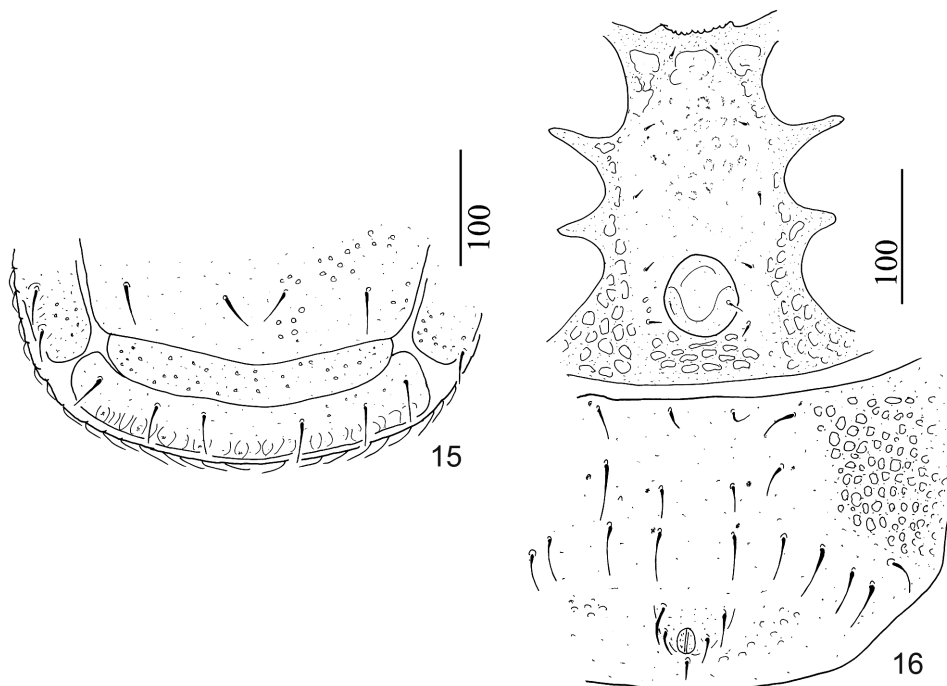


Ventral aspect of idiosoma (Fig. 16). Surface of sternal shield with some shallow oval pits on central area and with deep irregular pits on marginal areas. Five pairs of smooth, short (*ca* 10–12  $\mu\text{m}$ ) and needle-like sternal setae present. St1 placed near to anterior margin of sternal shield, St2 at level of posterior margin of coxae II, St3 at level of central area of coxae III, St4 at level of anterior margin of genital shield, St5 near posterior margin of genital shield. Inguinal and ventrianal shields fused. Position and shape of ventral setae and ornamentation of ventral shield as in female. Genital shield circular (*ca* 60–62  $\mu\text{m}$  long and *ca* 55–56  $\mu\text{m}$  wide), without sculptural pattern and with euanal setae. It situated between coxae IV.

Nymphs and larvae unknown.

Etymology. I dedicate the new species in memory of my dear teacher, colleague and friend, the excellent acarologist, Sándor Mahunka (1937–2012), who helped my work in the fields of acarology and zoology.

Remarks. Currently three *Trachytes* species are known with sail-shaped processes on the outer margins of the adgenital platelets. These processes are rounded in the species *T. decui* Huțu, 1983, and pointed in the *T. micropunctata* Huțu, 1973 and in the new one. The distinguishing characters are summarized in Table 1.



**Figs 15–16.** *Trachytes mahunkai* n. sp., male, paratype: 15 = caudal area of dorsal body, 16 = intercoxal area.

**Table 1.** Differences between *T. micropunctata* and *T. mahunkai*

	<i>T. micropunctata</i>	<i>T. mahunkai</i>
Lateral margin of genital shield of female	with denticulate inner margin	with smooth inner margin
Ornamentation of dorsal shield	dotted	covered by oval pits
Ornamentation of inguinal shield	dotted	covered by irregular pits
Ornamentation of ventrianal shield	dotted	covered by oval pits

*Trachytes micropunctata* Huțu, 1973

*Previous records from Romania.* Ieșelnița, Mehedinți County (Huțu 1977).

*Distribution.* Romania, Ukraine and Poland.

*Remark.* Endemic species.

*Trachytes minima* Trägårdh, 1910

*Previous records from Romania.* Moldova (Huțu 1974).

*Distribution.* Romania and Slovakia.

*Trachytes minimasimilis* Masán, 1999

*Previous records from Romania.* Maramureș (Kontschán 2006, 2008)

*Distribution.* Romania and Slovakia.

*Trachytes oudemansi* Hirschmann et Zirngiebl-Nicol, 1969

*Previous records from Romania.* Retezat National Park (Huțu 2000).

*Distribution.* Romania.

*Remark.* Endemic species.

*Trachytes pauperior* (Berlese, 1914)

*Previous records from Romania.* Maramureș (Kontschán 2006), Danube Delta (Huțu 1993, Huțu & Călugăr 1994).

*Distribution.* Central-Europe.

*Trachytes pecinai* Huțu, 1983

*Previous records from Romania.* Maramureș (Huțu 1983)

*Distribution.* Romania.

*Remark.* Endemic species.

*Trachytes romanica* HUȚU, 1983

*New records.* Transylvania, Mts Apuseni, Abrud to Zlatna, 872 m, N46°12'30", E23°07'18", 28.III.2010, CsCs. Caraș-Severin county, Țarcu Mts, Poiana Mărului, forest stream at the reservoir, NW of the village, mixed forest litter and moss from rocks, 08.VI.2011, KT-MD-PG. Oltenia, Poiana Mărului, beech forest, N45°23.362', E22°34.475', 890 m, from leaf litter, 02.XI.2007, CsCs-KJ-VVP. Oltenia, Poiana Mărului, beech forest, N45°23.362', E22°34.475', 890 m, from lichens from soil level, 02.XI.2007, CsCs-KJ-VVP. Oltenia, after Mărn, beech forest, N45°25.978', E22°27.550', 501 m, from leaf litter, 02.XI.2007, CsCs-KJ-VVP. Transylvania, Turda, Cheile Turzii, moss from rock in a stream, 21.XI.2001, SzT. Transylvania, Rimetea, Piatra Secuiului, moss from rock, 20.IX.2000, SzT. Transylvania, Turda, Cheile Turzii, after the mountain house, moss from the grassland, 20.09.2000, SzT. Transylvania, after village Cobești, beech forest, decayed tree, N46°6.544', E22°21.590', 337 m, 24.X.2009, CsCs-KJ-VVP-UZs.

*Previous records from Romania.* Oltenia and Caraș Severin region (HUȚU 1983).

*Distribution.* Romania.

*Remark.* Endemic species.

*Trachytes splendida* HUȚU, 1977

*Previous records from Romania.* Rarau, Suceava County (HUȚU 1977).

*Distribution.* Romania and Slovakia (Masán 2001).

*Trachytes tesquorum* Pecina, 1980

*Previous records from Romania:* High Plain Pitești (Constantinescu 2011), Danube Delta (HUȚU & Călugăr 1994).

*Distribution.* Romania and Slovakia.

*Trachytes wisniewski* HUȚU, 1983

*Previous records from Romania.* Oltenia (HUȚU 1983).

*Distribution.* Romania.

*Remark.* Endemic species.

## KEY TO THE FEMALES OF ROMANIAN TRACHYTES SPECIES

- |   |  |   |
|---|--|---|
| 1 | Genital shield linguliform, anterolateral angles of genital shield rounded | 2 |
| – | Genital shield axe-shaped, anterolateral angles of genital shield pointed  | 6 |
| 2 | Sail-shaped process on outer margins of adgenital platelets present        | 3 |
| – | Sail-shaped process on outer margins of adgenital platelets absent         | 5 |

- |    |   |                         |
|----|---|-------------------------|
| 3  | Sail-shaped process on outer margins of adgenital platelets pointed   | 4                       |
| –  | Sail-shaped process on outer margins of adgenital platelets rounded   |                         |
|    |   | <i>T. decui</i>         |
| 4  | Sculptural pattern on dorsal and ventrianal shields dotted  | <i>T. micropunctata</i> |
| –  | Sculptural pattern on dorsal and ventrianal shields with irregular pits   |                         |
|    |   | <i>T. mahunkai</i>      |
| 5  | Apical part of genital shield as wide as basal part, ornamentation with reticulate pattern  | <i>T. lamda</i>         |
| –  | Apical part of genital shield narrower than basal part, ornamentation with small oval pits  | <i>T. arculatus</i>     |
| 6  | Vertex with wide and ribbed lateral sections  | 7                       |
| –  | Vertex without wide and ribbed lateral sections   | 8                       |
| 7  | Surface of genital shield smooth, setae x2 situated on ventrianal shield  |                         |
|    |   | <i>T. aegrota</i>       |
| –  | Surface of genital shield ornamented by oval pits, setae x2 situated on membranous cuticle  | <i>T. pecinai</i>       |
| 8  | Setae St5 five times longer than other sternal setae  | <i>T. romanica</i>      |
| –  | Setae St5 as long as other sternal setae  | 9                       |
| 9  | Ventrianal shield fused with inguinal and sternal shields   | 10                      |
| –  | Ventrianal shield not fused with inguinal and sternal shields   | 13                      |
| 10 | Pygidial shield triangular, apical area of sternal shield smooth  | <i>T. irenae</i>        |
| –  | Pygidial shield rounded, apical area of sternal shield ornamented   | 11                      |
| 11 | Anterior region of sternal shield with a circular strongly sclerotised area   | <i>T. minimasimilis</i> |
| –  | Strongly sclerotised area on anterior region of sternal shield not circular   | 12                      |
| 12 | Strongly sclerotised area on anterior region of sternal shield U-shaped, genital shield with curved lateral margin and anterolateral points directed laterally  | <i>T. minima</i>        |
| –  | Strongly sclerotised area on anterior region of sternal shield H-shaped, genital shield with straight lateral margin and anterolateral points directed medially | <i>T. splendida</i>     |

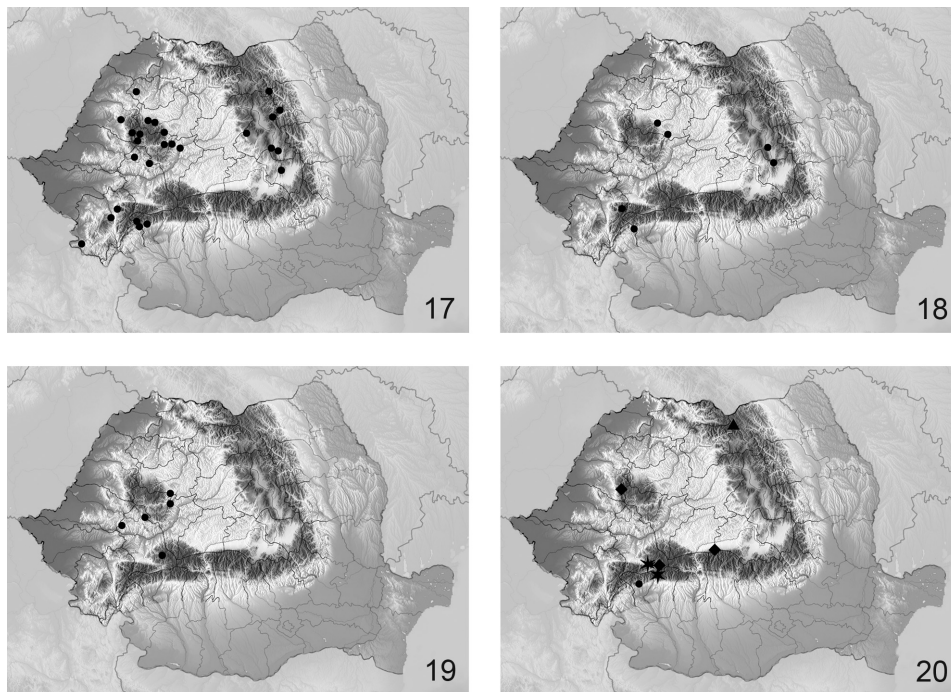
13	Inguinal shield fused with sternal shield	14
–	Inguinal shield fused with sternal shield	15
14	Inguinal shield fused with sternal shield near coxae IV, surface of sternal shield near coxae smooth	<i>T. adrianaea</i>
–	Inguinal shield fused with sternal shield near lateral margins, surface of sternal shield near coxae ornamented by oval pits	<i>T. baloghi</i>
15	St2 situated near St3, at level of anterior margin of genital shield	16
–	St2 situated posterior to St3, at level of coxae II	17
16	Genital, dorsal and inguinal and ventrianal shields covered by oval pits	<i>T. tesquorum</i>
–	Genital, dorsal and inguinal and ventrianal shields covered by irregular pits	<i>T. pauperior</i>
17	Surface of genital shield smooth	<i>T. oudemansi</i>
–	Surface of genital shield ornamented	18
18	Surface of genital shield with reticulate sculptural pattern	<i>T. hiramatsui</i>
–	Surface of genital shield with pits	19
19	Genital shield with irregular pits	<i>T. augusta</i>
–	Genital shield with small oval pits	20
20	Surface of sternal shield smooth	<i>T. hirschmanni</i>
–	Surface of sternal shield ornamented	21
21	Anterior area of sternal shield with reticulate sculptural pattern	<i>T. carpathicus</i>
–	Anterior area of sternal shield dotted	<i>T. wisniewski</i>

## DISCUSSION

Currently 48 *Trachytes* species are described from the Holarctic. Their diversity is unevenly distributed, with eight species from Asia (KONTSCHÁN & STARÝ 2010) and ten from North America (KONTSCHÁN & STARÝ 2011), therefore the listed 22 Romanian *Trachytes* species is very high compared with other regions and the neighboring countries, from where only 2–12 species are listed: eight from Hungary (KONTSCHÁN 2008), 12 from Slovakia (MAŠÁN 2001),

two species from Bulgaria (KONTSCHÁN 2013b) and six species from Ukraine (WIŚNIEWSKI 1993). The number of endemic species is high with half (11) of the listed species occurring only in Romania.

In the framework of this present study, I found seven *Trachytes* species in the investigated soil samples, the most common species being *T. aegrota* (Fig. 17), which is a widely distributed species in Europe and occurs in Asia and North America, as well. The second most common species were the endemic *T. romanica* and the subendemic *T. carpathica*, which occurred in the mountainous regions (Figs 18–19). The other four species were collected only in some localities (Fig. 20). Regarding the new occurrences (Figs 17–20), differences are not visible between different parts of Romania, with the newly collected species found in the geologically younger Carpathians and the older Apuseni Mountains as well, similar to the previously re-discovered species *Uroobovella hungarica* Hirschmann et Zirngiebl-Nicol, 1962 (KONTSCHÁN 2013a).



**Figs 17–20.** New occurrences of the *Trachytes* species in Romania: 17 = *T. aegrota*, 18 = *T. carpathicus*, 19 = *T. romanica*, 20. = *T. baloghi* (circle), *T. adrianaea* (triangular), *T. irenae* (diamond), *T. mahunkai* (star).

\*

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